REMARKS

The enclosed is responsive to the Examiner's Final Office Action mailed on December 27, 2007. At the time the Examiner mailed the Office Action claims 1-25 and 27-72, were pending. By way of the present response applicants have: 1) amended claims 1, 10, 11, and 48-67; and 2) added no claims; and 3) canceled no claims. As such, claims 1-25 and 27-72 are now pending. Applicants' representative would like to thank the Examiner and acknowledge the interview held on December 19, 2007 between Examiner Robert Timblin and applicants' representative Neal Berezny. Applicants reserve all rights with respect to the applicability of the doctrine of equivalents.

Claim Rejections under 35 U.S.C. §102(e)

The Examiner has rejected claims 1-3, 6, 9-23, 25, 27-32, 35-37, 39-48, 51-60 and 62-72 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,060,143 of Lee. ("Lee"). Applicants traverse the rejection on at least the grounds that Lee fails to disclose or suggest each and every element contained in at least independent claims 1, 67, and 71. Consequently, the remaining rejected claims, which depend upon the above independent claims, would also at least contain the same elements as the above independent claims, and thus Lee would also fail to disclose or suggest each and every claim limitation of the dependent claims.

The following requirements for a 35 USC 102 rejection were extracted from the MPEP 2131:

To anticipate a Claim, the reference must teach **EVERY ELEMENT** of the Claim. "A claim is anticipated only if each and every element **as set forth in the claim** is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Claim 1, as amended, reads as follows:

A rule processor for conducting contextual searches, the processor comprising:

*a **plurality of M input payload search registers**, wherein a data stream of content data to be searched is input into the plurality of payload search registers;*

a search execution engine comprising:

a search array coupled to the plurality of M search registers, wherein the search array comprises:

*a **plurality of M rows** of search array elements coupled to a plurality of M output match lines; and*

*a **plurality of N columns** of search array elements coupled to a plurality of N pattern input lines comprising a **search pattern**, wherein the **search array comprises an array of M by N search array elements**, and wherein the content data in the **plurality of M search registers is <u>approximately</u> replicated and stored N times in the plurality of N columns in the search array;** and*

*a sorter coupled to the search array to perform one or more contextual searches on content in the search array via parallel pattern matching in response to executing one or more search instructions specifying the one or more pattern searches and presenting one or more patterns to the content, wherein the **parallel pattern matching** comprises performing a **simultaneous search** within **all M rows** for <u>**all of the N search pattern elements**</u> input by the N pattern input lines, <u>**all** in one clock period.**</u>*

(Amended claim 1) (emphasis added).

In contrast, Lee, at least, fails to disclose or suggest all the limitations of claim 1. Lee, as interpreted by the rejection, is alleged to disclose an input data stream, s[j], from which a plurality of M input payload search registers are loaded. The rejection later asserts that the limitation of "*a **plurality of N columns** of search array elements coupled to a plurality of N pattern input lines comprising a **search pattern**"* is disclosed as N columns (s[i], c[i]) in figure 1, and the search pattern as the "target pattern" disclosed in col.4, line 4. However, the "target pattern" in Lee is not associated with the s[i] and c[i] data stream but with the P[i] target vector.

Please see col.3, line 65, and figure 1, where the "target pattern" label is positioned beside the P[1], P[2], P[3], etc. Although, it might be asserted that the target pattern contains a plurality of N characters, Lee clearly does not disclose or suggest *a plurality of N columns of search array elements* related to a search pattern. Instead, Lee teaches away from *a plurality of N columns of search array elements* because the search pattern in Lee is processed sequentially, one search pattern character P[i] at a time.

Referring to figure 1 in Lee, it appears that the figure indicates a number of steps performed sequentially and does not at all represent a *search array comprises an array of M by N search array elements.* Please note that col.2, lines 17-22, describe that a "block of N characters from the candidate data base stream S[j] is loaded in parallel into the comparator array where N is the size of the comparator array." In general, contextual searches involve two types of input data, the target data (the pattern being sought) and the data stream (the data being searched for the target pattern). Comparators are used to compare a target character with a data stream character. Claim 1 refers to the M rows of search array elements, which is related to the size of the data stream being processed in a cycle, whereas Lee appears to refer to the size of the data stream being processed as N, since the data stream S[j] is loaded into an N size comparator. It appears that the rejection is identifying the data stream as related to the claim's M rows, but then later identifies the N size of the same data stream as related to the claim's N columns, which is incorrect and improper. It appears that the data stream in Lee may be related to the M rows in the claim, however, Lee clearly discloses only one target pattern character that may be processed at a time. Although Lee appears to disclose that the one target pattern character is processed in parallel and compared to all M data stream characters in the comparator array, Lee clearly limits the size of the array to an M by one array. The assertion in the rejection that comparator array

140 comprises an array of M by N search array elements is incorrect. Figure 1 actually discloses the operation of a M by one array as it proceeds through numerous cycles of loading and processing.

Further, Lee teaches away from claim 1 and has a different mode of operation. Please note that col.2, lines 29-32, states that "depending on the results of this comparison, the **next** character in the target vector is or is not loaded into **all** the comparators in the comparator array." (Emphasis added). Further, col.2, lines 33 to 40, provide a specific example regarding the mode of operation of the Lee patent, wherein after P[i=1] has been processed, the "next character P[i=2]" is processed, and the "match trace continues" resulting in the loading of the P[i=3]. Figure 1 reflects this example, where each row in stage 1 relates to a separate step or processing cycle, requiring the loading and processing of each cycle. After P[1] is processed and has results, it is determined if P[2] should be loaded and processed. Results from the processing of P[2] determines if P[3] should be loaded and processed, which may lead to an "early out" to stage 2, where P[1] is reloaded and processed with a different set of M data characters C[1] to C[4], etc. Col.4, lines 1-29 provide additional details of the example provided in Lee. Lee appears to disclose loading and processing one target character in parallel across M data stream characters, wherein the results are used to determine if the next target character is loaded and processed. The Lee process is incompatible with the parallel loading and processing of M data characters and N target characters all in a single cycle. Aside from there being no guidance in Lee as to how to operate the Lee apparatus with more than one target character, Lee relies on this one target character system to provide what Lee calls an "early mismatch detection capability" for reducing redundancy and considers this feature an "important advantage," col.3, lines 24-28. Lee would need to change its principle mode of operation away from its disclosed advantage of

processing only one target character at a time to processing a plurality of target character simultaneously in parallel, in some undisclosed manner, which would at least alter the principle mode of operation and render the "important advantage" of "early mismatch detection capability" inoperable.

Furthermore, Lee fails to disclose or suggest *the plurality of M search registers is __approximately__ replicated and stored N times in the plurality of N columns in the search array;* nor, *wherein the **parallel pattern matching** comprises performing a **simultaneous search** within all M rows for __all of the N search pattern elements__ input by the N pattern input lines, __all__ in one clock period.* Lee appears to disclose the parallel loading and processing of M search registers by only one target character, ie. M by one array, and fails to disclose or suggest the parallel loading and processing of M search register **and** of N target characters. It could be asserted that Lee appears to disclose parallel processing only in one dimension, M by one, and provides no guidance or suggestion of the prospect of parallel processing in two dimensions, M by N.

The rejection asserts that Lee discloses replicating the M data stream N times, referring to figure 1, which was identified earlier as being misinterpreted and not recognized as a sequence of events of an M by one array. Lee appears to disclose replicating the one target character into each of the array elements, and replicating the data stream characters once when loading. Lee is defective at least because claim 1 requires that the data stream characters are replicated N times, and not that the one target character gets replicated M times. Further, the step of loading the M data stream characters was performed earlier in claim 1. Therefore, Lee fails to disclose or suggest the limitation of replicating the M data stream characters N times. Lee fails to recognize the advantage of replicating the M data stream, N times into the array, so that a plurality of N target characters could be loaded and processed in parallel. Lee fails to recognize that by

replicating the M data stream, a different target character can be loaded and processed with each M by one replicated clone, until all N target characters have their own replicated M by one array, so all N of the M by one arrays can be loaded and processed in parallel, and all in one clock period.

Independent claims 67 and 71 are similar to claim 1, and many of the above remarks also apply to claims 67 and 71. Specifically, Lee fails to disclose or suggest an array of M by N search array elements; nor replicating and storing the content in the M input payload search registers a plurality of times, in the plurality of N columns of search array elements; nor performing a search query simultaneously within all M rows for all of the N search pattern elements input by the N pattern input lines, all in one clock period. In light of the above remarks, Lee similarly fails to disclose or suggest all the limitations of claims 67 and 71.

Since the dependent claims have at least the same limitations of the independent claims, Lee also fails to disclose or suggest all the limitations of the dependent claims.

Applicants, accordingly, respectfully request withdrawal of the rejections of claims 1-3, 6, 9-23, 25, 27-32, 35-37, 39-48, 51-60 and 62-72 under 35 U.S.C. § 102(b) as being anticipated by Lee.

Claim Rejections under 35 U.S.C. §103(a)

The Examiner has rejected claims 4-5, 7-8, 24, 33-34, 38, 49-50 and 61 under 35 U.S.C. §103(a) as being unpatentable over Lee as applied to claims 1-3, 6, 9-23, 25, 27-32, 35-37, 39-48, 51-60 and 62-72 in view of U.S. Patent No. 5,051,947 of Messenger et al. ("Messenger").

Messenger is introduced to allegedly disclose features related to the above rejected dependent claims. The Office Action correctly recognizes that Messenger fails to disclose or suggest all the limitations of the independent claims. Applicants assert that Messenger has many of the same deficiencies as Lee, and thus, cannot remedy the deficiencies of Lee. See also the response filed October 11, 2007, with regard to Messenger.

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

Applicants, accordingly, respectfully request withdrawal of the rejections of claims 4-5, 7-8, 24, 33-34, 38, 49-50 and 61 under 35 U.S.C. § 103(a) as being unpatentable over Lee in view of Messenger.
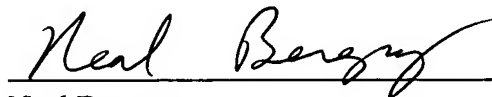
CONCLUSION

Applicants respectfully submit that the applicable rejections and objections have been overcome. The representative for the applicants, Neal Berezny would like to thank the Examiner for the telephone interview conducted on Dec. 19, 2007, and would like to again request that when the Examiner is ready to work on the present application, the Examiner is invited to call Neal Berezny at (408) 962-7563 or at (408) 720-8300, to schedule the interview, or to address any other issue that would help expedite prosecution of this application.

Pursuant to 37 C.F.R. 1.136(a)(3), applicant(s) hereby request and authorize the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 C.F.R. 1.16 and 1.17, to Deposit Account No. 02-2666.

Respectfully submitted,

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